



PHILIP MORRIS  
EUROPE MIDDLE EAST AFRICA  
RESEARCH AND DEVELOPMENT

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*(4)*

## Monthly Progress Reports

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JUNE 1980

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PME RESEARCH LABORATORY, JUNE 1980

PROJECT TITLE : PRODUCT RESEARCH  
PERIOD COVERED : JUNE 1980  
WRITTEN BY : J. BOURQUIN

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INSTRUMENT DEVELOPMENT CAP. LET.

Summary of Activities

- Cigarette lighters:

Three electric cigarette lighters have been constructed. Two of them are intended for the RM 20/CS smoking machines at the QC smoking laboratory, the third one being in reserve for future use.

- HP 9825 calculator:

The study of operating and programming is still continuing.

- Power supply for Battelle type smoke pumps:

Difficulties have been encountered due to the high noise level of the tachogenerators. Modifications in the circuit are being experimented with.

J. Bourquin

0000143432

PROJECT TITLE : ANALYTICAL INVESTIGATIONS  
PERIOD COVERED : MAY 26 - JUNE 26, 1980  
WRITTEN BY : F. MOSER

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N-NITROSAMINES

- The determination of DMN, NNN, NNK and NATB in MS and SS of 16 experimental cigarettes of the SPOTLESS series (1) has been continued.

- Removal of DMN from cigarette mainstream smoke (2):

Filtration efficiency of cellulose acetate filters containing 7 % triacetin attached to an experimental American Blend cigarette as function of filter length was studied.

Results are summarized in the table. They show the feasibility of reducing the amount of DMN in MS to less than 1 ng/c by variation of the CA filter length.

	<u>non-filter cigarette</u>	<u>cigarette with CA filter (undiluted)</u>			
CA filter (mm)	--	10	14	18	22
DMN (ng/c) *)	9.6	5.7	2.6	2.1	0.6
Reduction (%)	--	41	73	78	94

\*) values as found; recovery approx. 80 %.

In a first experiment the effect of dilution on filtration efficiency was estimated (diluted cigarette vers. dilution holes taped closed cigarette). A dilution of 10-13 % effects a 33 % reduction of DMN.

SERVICE FOR OTHER GROUPS

- 35 tobacco lots (TLA) and one cigarette brand (UK) were analyzed for ISH.
- 24 NINO extracts and 20 tobacco samples were analyzed for potassium, calcium and magnesium by atomic absorption.

REFERENCES

- (1) F. Moser, PME Monthly Progress Report, April 1980
- (2) F. Moser, PME Monthly Progress Report, May 1980

F. Moser

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PME RESEARCH LABORATORY, JUNE 1980

PROJECT TITLE : AGRICULTURAL CHEMICALS

PERIOD COVERED : JUNE 1980

WRITTEN BY : M. SPECK

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ROUTINE ANALYSES

Number of tobacco samples analyzed for pesticide residues in June:

Organochlorines	54
Organophosphorus	54
Organophosphorus + Methamidophos	1
Dihtiocarbamate	46
Maleic Hydrazide	4

M. Speck

0000143435

PROJECT TITLE : BIOTECHNOLOGY  
PERIOD COVERED : JUNE 1 - 30, 1980  
WRITTEN BY : J. BERNEY

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1. CONSUMPTION OF CITRIC ACID (1)

When citric acid was used to maintain the pH in the NINO denitration (2), the following amounts of residual citric acid are formed in the denitrated extract:

<u>pH of de-</u> <u>nitration</u>	<u>citric acid in the de-</u> <u>nitrated extract mg/l</u>	<u>percentage of citric acid</u> <u>metabolized by the yeasts</u>
5.5	5490	80.05
6.5	2576	88.67
7.2	1240	84.99

The average percentage of 85 % of citric acid metabolized by the yeast is perceptibly higher than the corresponding value for lactic acid (75 %).

2. NITRATE ASSIMILATION IN A STEM EXTRACT WITH A HIGH LEVEL OF TOTAL SOLIDS (3)

Following results are obtained when observing the influence of the initial nitrate concentration on nitrate assimilation in a stem extract containing 11.6 % TS:



<u>(NO<sub>3</sub>) initial in the extract</u>	<u>(NO<sub>3</sub>) assimilated</u>	<u>TS in the extract</u>
<u>g/l</u>	<u>g/l</u>	<u>%</u>
5.0	5.0	11.66
7.3	5.1	11.66
9.3	2.9	11.66

The different nitrate concentrations have been obtained by mixing the following extracts at different ratios:

- Standard RL stem blend extracted 1:5 with water (15.5 % TS, 14 g/l NO<sub>3</sub>)
- Flue-cured stems (lot No. 9012) extracted 1/5 with water (14.4 % TS, 0.37 g/l NO<sub>3</sub>).

#### Fermenter conditions

Temperature : 30° C  
 pH : 5.5  
 Dilution rate : 0.13  
 Culture : Candida utilis NCYC 707

At this high TS concentration assimilation of nitrate is no longer complete, as soon as the initial nitrate concentration is higher than 5 g/l.

However, having lower TS concentrations, nitrate concentrations up to 8 g/l can easily be eliminated by the yeasts (4).

#### MISCELLANEOUS

- Assistance to pilot plant for the running trials.

REFERENCES

- (1) J. Berney, Notebook 791202, p. 12-15  
M.F. Mangilli, Notebook 791205, p. 41-44
- (2) D. Schulthess, Monthly Report Biotechnology, May 1980
- (3) J. Berney, Notebook 791202, p. 19-23
- (4) D. Schulthess, Monthly Report Biotechnology, September 1979

J. Berney

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PROJECT TITLE : SPOTLESS  
PERIOD COVERED : JUNE 1980  
WRITTEN BY : F. MOSER

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#### OBJECTIVE

To produce prototype cigarettes which are denitrated, but otherwise correspond to commercial cigarettes. Two series of prototypes have been selected for the project, one representing American blend cigarettes and the other aircured type cigarettes. The whole Spotless project includes 16 different cigarette brands (7 for the aircured type and none for the American blend type) all cigarettes are ready.

#### EXPERIMENTAL WORK

The tobaccos for the project correspond to BRD Atlantic 8331 for the air-cured type and to MLF Atlantic 8222 for the blend type cigarettes.

Although eventually the tobaccos for the cigarettes will be submitted for a true denitration procedure in which the water solubles are not lost, as a first step it was decided to use aqueous extraction, to discard the extract and to compensate only for the loss of potassium ions by adding potassium citrate. In fact, as can be seen from the figures in table 1, the loss has not quite been made up for, due, probably, to some loss of potassium citrate in the flavouring cylinder during spraying.

The blend components for each type of cigarette were extracted separately in cut rag form as well as in the ready blended form. This was chosen simply as control measure.

The extraction was carried out by the Process Development Group in the Pilot Plant using a rotary segmented extractor and water of 80° C.

The following listing recalls the coding allocated to the individual experimental cigarettes:

First sign : Ø (zero) for the year 1980

A : for air-cured type (red label)

B : for blend type (black label)

SPO : for denitrated

1 ØS-A-TOT	} red label	1 ØS-B-TOT	} black label
2 ØS-A-TOT/SPO		2 ØS-B-TOT/SPO	
3 ØS-A-MD		3 ØS-B-FC	
4 ØS-A-CH		4 ØS-B-BU	
5 ØS-A-MD/SPO		5 ØS-B-OR	
6 ØS-A-CH/SPO		6 ØS-B-FC/SPO	
7 ØS-A/SPO/SPO		7 ØS-B-BU/SPO	
		8 ØS-B-OR/SPO	
		9 ØS/SPO/SPO/SPO	

The TLA results for the cigarettes are listed in tables 2-8. Comparison is in certain cases difficult because of unsuitable cigarette RTD's. However, some of the results are startling. In table 2 the value for TPM of the non-extracted control cigarette 1 ØS-A-TOT is 16.8, for the cigarette of bulk extracted tobaccos 2 ØS-A-TOT/SPO 16.1 and for the cigarette with individually extracted blend components 7 ØS-A-SPO/SPO 14.8. One might have expected a larger influence of nitrate removal on TPM. Perhaps the nitrate removal is being compensated by the associated removal of other solubles. In the blend version, table 5, there is a TPM reduction but, of course, the puff number is reduced.

Obviously, a number of speculations spring to mind when pondering over these tables but they require some experimental follow-up.

F. Moser

TABLE 1

Project Spotless: Washing - Efficiency on  $N-NO_3$  and K

Sample	% $N-NO_3$	% Efficiency	% K	% Efficiency	% K after addition of Tri-K-Citrate
1 $\phi S-A-TOT$	0.275	89.1	4.85	93.2	3.57
2 $\phi S-A-TOT/SPO$	0.03		0.33		
3 $\phi S-A-MD$	0.25	92	4.79	93.1	3.54
5 $\phi S-A-MD/SPO$	0.02		0.33		
4 $\phi S-A-CH$	0.30	93.3	4.65	93.8	3.85
6 $\phi S-A-CH/SPO$	0.02		0.29		
1 $\phi S-B-TOT$	0.35	95.7	3.75	91.5	3.06
2 $\phi S-B-TOT/SPO$	0.015		0.32		
3 $\phi S-B-FC$	0.03	76.7	3.08	80.8	2.80
6 $\phi S-B-FC/SPO$	0.007		0.59		
4 $\phi S-B-BU$	0.46	89.1	4.99	94.6	4.27
7 $\phi S-B-BU/SPO$	0.05		0.27		
5 $\phi S-B-OR$	0.03	93.3	2.23	85.2	1.62
8 $\phi S-B-OR/SPO$	0.002		0.33		

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TABLE 4

Project: Spotless		4 $\phi$ S-A-CH	6 $\phi$ S-A-CH/SPO	
<u>Filler</u>				
Alcaloids tot.	%	0.71	0	
Reducing sugars	%	0	0	
Nitrate Nitrogen	%	0.33	0	
Ammonia Nitrogen	%	0.74	0	
Kjeldahl Nitrogen	%	3.79		
Total Nitrogen	%	4.30		
<u>Fiber</u>				
SN	mg/F	0.67	0.16	
HCN	$\mu$ g/F	12.9	3.9	
Aed.	mg/F	0.59	0.50	
<u>Smoke</u>				
CO	mg/Cig.	21.5	17.7	
NO	mg/Cig.	0.36	0.04	
TPM	mg/Cig.	21.9	15.3	
SN	mg/Cig.	0.62	0.13	
Puff	Number	7.2	7.4	
HCN	$\mu$ g/Cig.	146	124	
Aed	mg/Cig.	1.25	1.67	
ISH	%	48	27	

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Project: Spotless	1 $\phi$ s-B-TOT	2 $\phi$ s-B-TOT/SPO	3 $\phi$ s-B/SPO/SPO
Filter			
Alcohols tot. %	1.96	0.18	0.13
Reducing sugars %	6.7	0	0
Nitrate Nitrogen %	0.25	0	0
Ammonia Nitrogen %	0.31	0.05	0
Kjeldahl Nitrogen %	3.22		
Total Nitrogen %	3.47		
Filter			
SN mg/F	1.06	0.13	0.12
HCN $\mu$ g/F	58	28	32
Acid. mg/F	0.48	0.52	0.55
Smoke			
CO mg/cig.	16.1	15.3	15.7
NO mg/cig.	0.31	0.03	0.03
TPM mg/cig.	19.1	13.2	15.4
SN mg/cig.	1.31	0.12	0.14
Number	8.0	6.4	6.9
HCN $\mu$ g/cig.	2.43	5.1	5.1
Acid. mg/cig.	1.41	1.40	1.55
ASH %	38	34	36

Project: Spotless		3 $\phi$ s - B - FC	6 $\phi$ s - B - FC/SPO	
<u>Filler</u>				
Alcaloids tot.	%	2.90	0.30	
Reducing sugars	%	9.5	0	
Nitrate Nitrogen	%	0.08	0	
Ammonia Nitrogen	%	0.08	0	
Kjeldahl Nitrogen	%	2.88		
Total Nitrogen	%	2.96		
<u>Fieks</u>				
SN	mg / F	1.31	0.32	
HCN	$\mu$ g / F	68	67	
Aed.	mg / F	0.69	0.76	
<u>Smoke</u>				
CO	mg / Cig.	16.5	15.9	
NO	mg / Cig.	0.10	0.03	
TPM	mg / Cig.	22.4	22.0	
SN	mg / Cig.	1.86	0.30	
Puff	Number	8.3	7.1	
HCN	$\mu$ g / Cig.	244	149	
Aed.	mg / Cig.	1.56	1.76	
ISH	%	34	33	

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Project: Spotless	4 $\phi$ s - B-BU	7 $\phi$ s - B-BU/spo
Filter		
Alcalds tot. %	1.82	0.06
Reducing sugars %	1.4	0
Nitrate Nitrogen %	0.47	0
Ammonia Nitrogen %	0.56	0
Kjeldahl Nitrogen %	3.96	
Total Nitrogen %	4.43	
Filter		
SN mg/F	1.13	0.16
HCN $\mu$ g/F	73	24
Acid. mg/F	0.45	0.48
Smoke		
CO mg/cig.	18.7	13.4
NO mg/cig.	0.47	0.02
TPM mg/cig.	16.4	10.1
SN mg/cig.	1.20	0.09
Partic. Number	7.7	6.3
HCN $\mu$ g/cig.	199	64
Acid. mg/cig.	1.27	1.37
154 %	40	28

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TABLE 8

Project: Spotless		5 $\phi$ s - B - OR	8 $\phi$ s - B - OR/SPO	
<u>Filler</u>				
Alcaloids tot.	%	0.96	0.11	
Reducing sugars	%	15.7	0	
Nitrate Nitrogen	%	0.04	0	
Ammonia Nitrogen	%	0.08	0	
Kjeldahl Nitrogen	%	2.16		
Total Nitrogen	%	2.20		
<u>Filler</u>				
SN	mg/F	0.72	0.15	
HCN	$\mu$ g/F	63	43	
Aed.	mg/F	0.80	0.73	
<u>Smoke</u>				
CO	mg/cig.	17.2	14.7	
NO	mg/cig.	0.12	0.04	
TPM	mg/cig.	25.3	18.4	
SN	mg/cig.	1.07	0.11	
Puff	Number	15.7	7.1	
HCN	$\mu$ g/cig.	202	160	
Aed	mg/cig.	1.54	1.62	
ISH	%	33	32	

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PME RESEARCH LABORATORY, JUNE 1980

PROJECT TITLE : PROTAGORAS  
PERIOD COVERED : JUNE 1-30, 1980  
WRITTEN BY : A. HAENGGI

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The aim of the project is the determination of the influences proteins of tobacco have on the smoke composition, on smoke condensate and on cigarette subjectives. Our present problems are the extraction of proteins from tobacco and the preparation of reconstituted tobacco sheets.

1. PROTEIN EXTRACTION FROM TOBACCO DUST USING ENZYMES (1)

Comparison of the proteolytic power of 9 commercially available enzymes.

Procedure : 180 g tobacco dust (13.1 % proteins)  
+ 500 ml water  
↓  
pH adjusted with HCl or NaOH  
+ 200 mg enzymes  
↓  
incubation at 170 r.p.m. during 6 hours  
↓  
centrifugation at 20'000 r.p.m. during 30 minutes  
↓  
supernatant analysis

Enzyme	supplier	source	temp.	pH	% protein extraction
Protease	Boehringer	bacterium	37°C	7.5	38.65
Protease	Calbiochem	"	37°C	7.5	55.99
Trypsin	Fluka	--	37°C	7.5	34.97
Proteolytic	ICN	--	37°C	7.5	38.36
Proteinase	ICN	--	37°C	7.5	37.70
Neutrase	Novo	bacterium	55°C	7.5	41.19
Alcalase	Novo	"	55°C	7.5	50.17
Pepsin	Fluka	--	37°C	1.8	47.25
Papain	Calbiochem	plant	37°C	7.5	38.10

## 2. PROTEIN EXTRACTION FROM BURLEY STRIPS (2)

Burley strips containing 20 % proteins have been extracted under the same conditions using Calbiochem protease and Trypsin as proteolytic enzymes.

Enzyme	protein extraction in %
Protease (Calbiochem)	59.4
Trypsin (Fluka)	41.1

## 3. OPTIMALIZATION - PROTEASE (3)

The results obtained from the comparison of the enzymes show that the proteolytic power of the Calbiochem Protease is most efficient for our purposes. In order to improve its catalytic activity different parameters have to be optimized.

In a first step the influence of the incubation temperature was tested. All other parameters mentioned under point I remained unchanged.

<u>Temperature</u>	<u>% protein extraction</u>
30°C	51.4
37°C	54.45
44°C	56.20
51°C	-- (58.29*)
58°C	66.14 (61.42*)
65°C	69.20 (65.23*)
72°C	66.26

\* only 150 mg enzymes instead of 200 mg.

A maximum yield of the extraction is obtained at a temperature of 65°C. At higher temperatures, a decrease of the extraction efficiency can be observed which is certainly caused by the destruction of the enzyme.

#### 4. FUTURE WORK

- Continuation of Protease optimalization  
(incubation time, enzyme concentration, pH)
- Utilization of a cigarette tobacco mixture  
(B-blend - type MLF) (4)

#### REFERENCES

- (1) A. Hänggi, Notebook 791203, pp. 9-14 + 17
- (2) M.F. Mangilli, Notebook 791205, pp. 38-39
- (3) A. Hänggi, Notebook 791203, pp. 15-16 + 20-25
- (4) F. Moser, Project Report Spotless, January 1980.

PROJECT TITLE : Nitrate Reduction by Controlled Fermentation  
PERIOD COVERED : May 24th - June 26th, 1980  
WRITTEN BY : C. Ruf

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## 1. TRIALS

### 1.1. Trial NINO 57

The trial NINO 57 was terminated on June 16th and some remarks can already be mentioned.

1.1.1. First of all the amount of residual phosphates in the concentrated extract has decreased about 9 times, from 120 g/l to 13.5 g/l, by using lactic acid instead of phosphoric acid. In fact we use a mixing of 90% lactic and 10% phosphoric acid. Therefore the sheet made with this concentrated extract should have a better combustibility.

1.1.2. The acid consumption is related to the pH of the fermentation as shown by the microbiology laboratory. This was confirmed in the pilot plant at two different pH values :

pH	acid consumption g/l extract
5	29.0
6	14.4

1.1.3. After 6 weeks of continuous fermentation a physical modification of the NINOMASS was observed : it became more sticky. By microscopic examination we found that the yeasts which were previously separated tended to join and to form chains. However this modification did not affect the denitration.

### 1.2. Trial NINO 59

The goal of this trial which ran from June 4th to 6th in the 20 l fermenter was to repeat the denitration of strips extract (NINO58) for a longer period. This time a total denitration was achieved, even after reduction of the sugar concentration to the level corresponding to the  $\text{NO}_3\text{-N}$  only. But on the other hand a residual amount of ammonia of about 30% of the initial concentration was found in the denitrated extract, as soon as the fermenter was fed with less sugar.

### 1.3. Trial NINO 60

1.3.1. This trial has immediately followed NINO 57 in the pilot plant equipment. The objective is to optimize the sugar consumption during the fermentation.

First results showed an increased acid consumption. As expected the micro-organisms turn to the acid as a carbon source if the sugar concentration is decreased.

1.3.2. On June 16th an infection in the fermenter and in the sterilization line was detected. The continuous fermentation was stopped without emptying the fermenter and the pipes and the heat exchangers were cleaned and sterilized. Since then, the infection is located in the fermenter only. Although the denitration process does not seem to be affected we will try to determine the type of this infection.

## 2. NINO SCALE-UP

2.1. On June 17th the undersigned went to PEC (Chemap) to discuss the engineering study (Ref. 1).

2.2. The material balances sent by S. Dobberstein from Richmond (Ref. 2) as a part of the economic evaluation were checked by D. Schulthess and C. Ruf. Mr. Schulthess took them back to Richmond.

## 3. PILOT PLANT

See monthly report of June 1980 : "Pilot Plant Operations" by N. Lüthi.

## 4. NINOMASS

Two samples of NINOMASS were given to Mr. Gaisch for his trip to Richmond and to the Miller Brewery (Ref. 3 and 4). One was dried in the fluidized bed dryer from Aeromatic. The second was washed, centrifuged again and dried in a laboratory oven.

## 5. NINO/RCB

Trial NINO 60 was interrupted for two days in order to produce 340 kg of non-fermented concentrated extract. It was needed as a control for the NINO/RCB trials No. 9, 10 and 11.

See also monthly report : "Reconstituted Tobacco II", June 1980, by A. Robbiani and P. Karbacher.

## 6. REFERENCES

Ref. 1 : "Compte-rendu de la discussion du 17 juin 1980 chez PEC" June 18, C. Ruf.

Ref. 2 : Letter from S. Dobberstein to C. Ruf, May 16, 1980.

Ref. 3 : Letter from H. Gaisch to E. Chicoye, May 12, 1980.

Ref. 4 : Letter from E. Chicoye to H. Gaisch, May 27, 1980.

CLR/sde/July 1st, 1980

  
C. Ruf

PROJECT TITLE : Pilot Plant Operations  
PERIOD COVERED : May 24th - June 28th, 1980  
WRITTEN BY : N. Lüthi

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## 1. EQUIPMENT

### 1.1. Extraction

A rented Sweco vibrator was tested to clean up the liquor at the outlet of the extractor. Trials were made by using screens of 200 and 270 mesh. The results will be evaluated comparing the Sweco vibrator with the existing basket filter.

### 1.2. Centrifuge

The spare motor arrived on May 27th. Therefore the rented centrifuge was returned to Alfa-Laval. The new motor broke down on June 9th. Fortunately Alfa-Laval was able to send us another centrifuge on the next day. The switch-box of our centrifuge as well as the centrifuge were given to Alfa-Laval for control.

### 1.3. Evaporation

During trial NINO 57 a paddle of a vacuum-pump as well as of the distillate pump broke. The spare parts for repair were available in the pilot plant.

### 1.4. Control

The flow-meter for the extract before the mixing vessel was moved. It is now installed before the sterilization line. The operators check the flow-rate once a shift.

### 1.5. Fermenter

The fermenter was cooled down on June 23rd for a period of 24 hours to produce non-fermented concentrated extract (Ref. 1).

### 1.6. Carousel extractor

The rented carousel extractor from Ex-Technik was sent back to the supplier on June 10th.

## 2. MATERIALS

### 2.1. Antifoam Paracum

The quality of the antifoam Paracum from Dr. Kolb AG recently showed great variations.



The product was diluted with water at a ratio of 1 : 3 as practised before but it tended to separate later. Contact will be taken with the supplier to discuss this problem.

## 2.2. Extract of NINO trial 57

The extract of NINO trial 57 was filled into sterilized stainless steel drums.

Aluminium screw caps or plugs together with a gasket of specially impregnated web were used to seal the drums. This system is also used in the brewing industry.

Two months later some of the drums were opened and we found a number of very strongly corroded plugs.

After examination we found that only those plugs which showed signs of damaged gasket were corroded.

These plugs were probably tightened too much. We think that the reason for the corrosion is an electrolytic process (two different metals plus extract).

We are now looking for plastic or stainless steel plugs.

## REFERENCES

Ref. 1 : Monthly report, June 1980, Nitrate Reduction by Controlled Fermentation, C. Ruf.

## PROCESS DEVELOPMENT

*N. Lüthi*

N. Lüthi

July 2nd, 1980  
NIL/sde

PROJECT TITLE : Unit Operations I  
PERIOD COVERED : May 24th - June 27th, 1980  
WRITTEN BY : P. Karbacher

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#### NINOMASS

During the start up of the rented fluidized bed dryer from Aeromatic some technical problems had to be solved. Now the machine works in three shift operation without problems. Until now 180 kg of dried NINOMASS were produced. VLGZ was contacted and a meeting is foreseen on July 16th, during which the next steps will be co-ordinated. The test procedure for the use of dried NINOMASS as animal feed will be established.

#### RL-HANDSHEET MAKING UNIT

The development lab. of Dow Chemical Europe in Horgen was visited (Ref. 1). The objective of the visit was to see what type of equipment they use to produce handsheets. Offers for different handsheet making units were received from two representatives for paper testing equipment.

The analyses from the handsheets made in Biberist were received (Ref. 2).

	Sheet 1	Sheet 2	RL base web (USA)
Freeness <sup>o</sup> SR (Schopper-Riegler)	73	76	*
Substance	89 g/m <sup>2</sup>	72 g/m <sup>2</sup>	71 g/m <sup>2</sup>
Thickness	0.276 mm	0.210 mm	0.155 mm
Density (calculated)	0.32 g/cm <sup>3</sup>	0.32 g/cm <sup>3</sup>	0.46 g/cm <sup>3</sup>
Tensile strength	1.344 kg	0.905 kg	1.165 kg

\* not analyzed

The two sheets made in Biberist are different from the US base web. The US sheet shows same substance at lower thickness, i.e. its density is higher.

REFERENCES

- Ref. 1 : Report on the visit to Dow Chemical Europe in Horgen  
of June 19th, 1980.
- Ref. 2 : Monthly report, May 1980, Unit Operations I,  
P. Karbacher.

PROCESS DEVELOPMENT

P. Karbacher  
P. Karbacher

July 1st, 1980  
KPA/sde

0000143455

PROJECT TITLE : Unit Operations II  
PERIOD COVERED : May 27th - June 30th, 1980  
WRITTEN BY : N. Lüthi

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#### STRIPS EXTRACTION

The last trials with the rented carousel extractor from Ex-Technik were carried out at lower feedwater temperatures.

The objective was to optimize the temperature with respect to the ammonia and nitrate-nitrogen concentrations of the extract in order to overcome the problems encountered with the fermentation of strips extract which were reported earlier (Ref. 1). Therefore the  $\text{NH}_3\text{-N}$  and  $\text{NO}_3\text{-N}$  levels of the extract were determined at different feedwater temperatures.

Temperatures of 18, 30, 35, 40 and 45°C were tried at the following conditions :

Extraction time : 40 min  
Input strips : ~18 kg/h  
Ratio strips to water : ~ 1 : 10

The extract of the lowest temperature was used for a fermentation trial in the 20:1 fermenter, NINO trial 59 (Ref. 2).

The figure on appendix 1 shows the effect of the temperature on the ammonia and nitrate-nitrogen levels of the extract. Somewhere between 40 and 50°C the  $\text{NH}_3\text{-N}$  level starts to exceed the  $\text{NO}_3\text{-N}$  concentration.

The figure on appendix 2 shows the effect of the temperature on the extraction grades of the strips for HWS,  $\text{NO}_3\text{-N}$  and  $\text{NH}_3\text{-N}$ .

These results suggest that future trials for strips extraction should be carried out at temperatures lower than 50°C and this for two reasons :

- 1) At lower temperatures the concentration of  $\text{NO}_3\text{-N}$  in the extract always exceeds the level of  $\text{NH}_3\text{-N}$ .
- 2) Between 40 and 50°C more than 80% of the nitrate present in the unwashed strips are extracted.

#### DUST SIEVING FOR MONIQUE/RCE

An offer was received from Chauvin in Grenoble for spare parts of the sieving machine in Onnens.

REFERENCES:

- Ref. 1 : Monthly report, April 1980, Biotechnology,  
D. Schulthess.
- Ref. 2 : Monthly report, June 1980, Nitrate Reduction by  
Controlled Fermentation, C. Ruf.

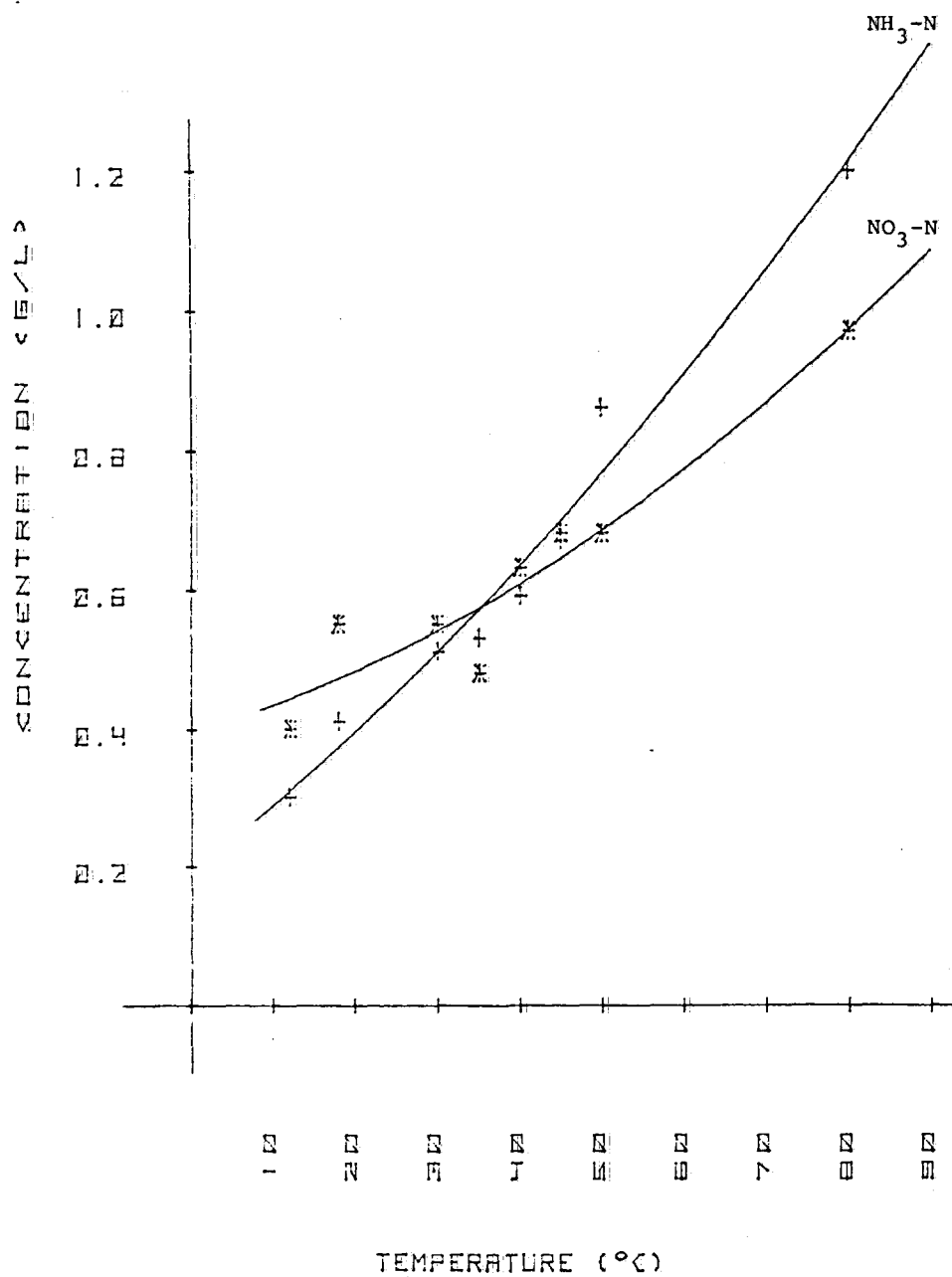
PROCESS DEVELOPMENT

*N. Lüthi*  
N. Lüthi

July 2nd, 1980  
NIL/sde

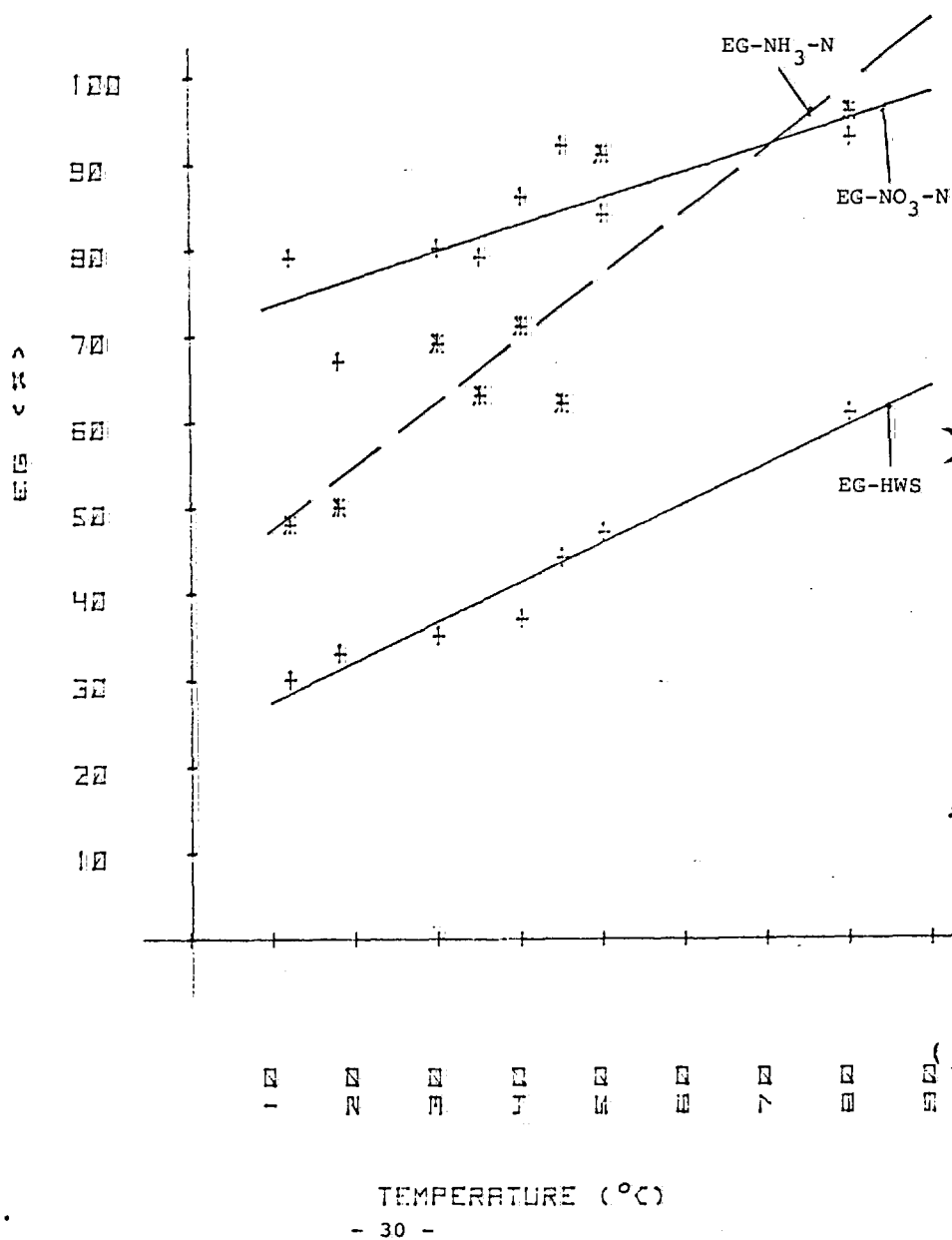
0000143457

EFFECT OF FEEDWATER TEMPERATURE ON  $\text{NH}_3\text{-N}$   
AND  $\text{NO}_3\text{-N}$  CONCENTRATION OF THE EXTRACT



- 29 -

0000143458

EFFECT OF FEEDWATER TEMPERATURE  
ON EXTRACTION GRADES OF STRIPS

0000143459

PROJECT TITLE : Reconstituted Tobacco  
PERIOD COVERED : May 22nd - June 23rd, 1980  
WRITTEN BY : P. Karbacher, A. Robbiani

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#### MONIQUE/RCB

##### Production

The cumulated production for the first 6 months of 1980 is 206'143 kg. This is 0.6% lower than the budgeted annual production calculated for 6 months.

##### Roll coater, rubber roll

On June 9th the rubber roll was replaced again with a new one. During the first week after the change the sheet showed no stripes. After the first weekend shut down the stripes were observed again on Monday. According to the workshop which replaced the rubber there are two possible reasons :

- Bad workmanship of the rubber replacement
- Cooling down during the weekend.

This problem is followed up by the Onnens maintenance department and by process development.

##### After dryer

On June 9th and 10th the after dryer was isolated.

##### FTR cutter (Ref. 1)

On June 23rd the existing COMAS slitter cutter was dismantled and the FTR cutter was installed.  
The new cutter is working to our satisfaction.

##### Heat exchanger

On June 23rd 2 electric valves on the heat exchanger had to be replaced with 2 pneumatic ball valves because of bad functioning.

##### Incorporation of some Swiss loose leaf tobacco into Monique/RCB feedstock (Ref. 2)

The FTR leaf department decided to use some small lots of Swiss tobacco at a rate of 1% in the Monique/RCB feedstock composition. This tobacco is fed together with the stems through the hammer mill.  
No processing difficulties were encountered.



#### Monique/RCB - trials

On May 29th a splitted batch of MLF cut filler was produced : 6 tons of current MLF and 6 tons of MLF containing Monique/RCB sheet, lot No. 0123 (FTR additive formula, 20% reduced), both batches with 3.4% sheet.

Panels A and B preferred the cigarette made from the lot No. 0123 (Ref. 3).

As of May 21st already the reduced additive formula was introduced for current production (Ref. 4).

By instruction of the leaf department the utilization of Monique/RCB is limited to 3.4% in our blends due to insufficient combustibility and taste properties.

At this level the total RCB production cannot be absorbed within FTR. Furthermore due to the contract manufacture the volume of cut filler processed in the FTR primary is very strongly reduced. Both facts resulted in an ever increasing Monique/RCB stock level and duration.

A product quality improvement programme was initiated (Ref. 5).

Additional samples were manufactured in accordance with the blending department using further modified additive formulae.

From those sheets 100% cigarettes were made and smoked by panel A vs. 100% cigarettes of current production.

Panel A preferred the cigarettes from current production (Ref. 6).

A situation report on the RCB/Monique usage was received from PME-LD (Ref. 7).

#### REFERENCES

Ref 1 : Monthly report, February 1980, Reconstituted Tobacco II, A. Robbiani

Ref 2 : Letter to Mr. R. Monneron from Mr. L. Robert, liste petits lots inactifs du 2.6.1980, June 10th, 1980.

Ref 3 : Tests de dégustation Nos. 175 + 177 of June 6th and 5th.

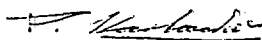
Ref 4 : Monthly report, May 1980, Reconstituted Tobacco, A. Robbiani.

Ref 5 : Memo to J. Gibson from M. Häusermann, Monique-RCB,  
May 19th, 1980.

Ref 6 : Memo to H. Friedrich from PME-LD, RCB-Monique, June 23th,  
1980.

Ref 7 : Memo to H. Friedrich from PME-LD, RCB-Monique, June 23th,  
1980.

PROCESS DEVELOPMENT



P. Karbacher



A. Robbiani

July 2nd, 1980  
KPA/ARO/sde

PROJECT TITLE : PME Cigarette Data Bank and  
Related Procedures

PERIOD COVERED : June 1st - 30th, 1980

WRITTEN BY : R. Toimil

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PME Cigarette Data Bank

- The procedure for making pilot cigarettes is finished and the Product Development informed.
- The different forms for cigarette analyses of the Product Development and those for pilot cigarettes were adapted to the PME Cigarette Data Bank inputs.
- A new form to order filters from suppliers was established and submitted for approval.

Jet 2000

The US patent application was turned down because of infringement on other patents.

These patents were given to us by Mr. M. Mandiratta. They were studied and fundamental differences found. Mr. M. Mandiratta will communicate these differences to the States for further action.

Assistance to other services

- So that they can contact INPADOC (Austria), Mr. J. Mandiratta and his secretary, Ms. M Schmidt received training on Mitek V3 code. An instruction manual was prepared for this purpose.
- The Quality Control requested from us the study of the Herzfeld index. APL allows us to calculate this index for all brands with a multiple regression coefficient of  $R^2$  0,998.

*Toimil*

R. Toimil

PROJECT TITLE : New Material Development  
WRITTEN BY : E. Erkoheh  
PERIOD COVERED : June 1st - 30th, 1980

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### 1. Tipping paper

#### 1.1 Micromechanically perforated tipping paper

Five bobbins with the following porosities: 30, 40, 54, 382 and 602 l/h/4 cm were received from Ecusta. Cigarette samples were made of qualities 54, 382 and 602 l/h/4 cm. The results on dilution and smoke analyses have not been received.

#### 1.2 Modified tipping paper Benkert Z4/90

Cigarettes from Munich are still expected.

### 2. Cigarette paper

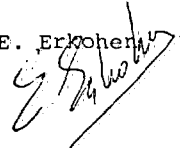
In order to replace WP 60, trials were carried out last year by Mr. P. Balliger (Ref. No. 1) with Tercig O 8,5ND 4321 on Marlboro for use in Eastern European countries. The results showed: ashes slightly dark.

For this reason, Tervakoski was requested to make a modified version of Tercig O 8,5ND 4321.

Cigarettes were made with this modified paper. The smoke results (TPM, DPM and tar) were within the tolerances. The ash aspect was better. The cigarettes were sent to Lausanne for taste evaluation.

### 3. Filter paper

Six bobbins of ultra-porous plug wrap (Ultrapor<sup>M</sup>) were received from Ecusta. Porosities range from 1.800 to 10.000 according to Coresta. These bobbins have been sent to the Quality Control for physical testing.

E. Erkoheh  


### Reference:

1. Monthly report on Material Development of October and November 1979 by P. Balliger.

PROJECT TITLE : CIGARETTE DEVELOPMENT  
TECHNICAL REPORT  
WRITTEN BY : P. NAGEL  
PERIOD COVERED : May 29th - June 24th 1980

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S W I T Z E R L A N D

278    EVEREST (FLI)                      Production of triple filters by  
Baumgartner

The manufacture of triple filters for the FLINT cigarette is relatively complicated. Because of the patent situation the central plug must be purchased from Baumgartner. As soon as this supplier can produce a triple filter corresponding to our specifications we will make the change.

The SPA filter from JOB has been replaced by a DICO CAF 250 and three variants have been received :

- a) The DICO CAF 250 was treated with 7 % of ESTROBOND B
- b) It was treated with 7 % of polyglycol 400
- c) It was treated with 7 % of ESTROBOND B and polyglycol 400, 50 %/50 %

These three different filters are presently under evaluation.

266    HARVARD (MAB)                      Swiss Tar : 6.0  
SN : 0.6

In view of a development of a new MURATTI 2000 with a 25 mm triple filter some preliminary work was carried out on dual filters. This was necessary as the machine producing 25 mm triple filters will not be available before the end of October, that is to say two months before the product test.

Several prototypes were produced with three different blends (without AC), with different filter combinations and with several cigarette papers.

One of these products attains the final objective.  
Its characteristics are as follows :

Prototype No	108
Blend No	CH 04 271 03 N 02
ETNA-1	27 %
Cigarette paper	110-6 EP
Tipping paper	24/120
Filter (dual)	2.5/48 Y/5.0/40 X Charcoal N.A. FU-POV 100
Tobacco weight	608 mg/cig.
Total RTD	103 mm WG
Filter RTD	87 mm WG
Total alkaloids	1.59 %
Nitrate-N	0.20 %
Swiss Tar	6.0 mg/cig.
SN	0.54 mg/cig.
CO	6.0 mg/cig.
NO	0.10 mg/cig.
Puff count	7.4
Dilution	25 %

Next step : Flavour trials will be carried out on this prototype.

320 MANHATTAN (MAH)

As this project is bound to project HARVARD, a prototype will be produced on the basis of the specifications of prototype HARVARD 108.

271 COLORADO (MAG) Swiss Tar : 3.0  
SN : 0.3

In the same context as project HARVARD, an initial development with a double filter is under way.

N I G E R I A

314 YORK (PMK) Product test  
Triple filter production

- During May a new series of prototypes were made in Nigeria (1). Three of them (Codes BCY / BDY / ADY) have been chosen for a product test (2).
- The product test results will be available by mid-July 1980.
- The specifications for the production of the triple filters from FTR have been established.  
PME agreed to start the production (3).

Ref. (1): Minutes from J.-J. Ramu, April 23, 1980

Ref. (2): Trial report from P. Nagel, June 3, 1980

Ref. (3): Minutes from J.-J. Ramu, June 17, 1980

*P. Nagel*  
P. Nagel

27/06/1980/PHN/cap

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0000143467

PROJECT TITLE : CIGARETTE DEVELOPMENT  
TECHNICAL REPORT  
WRITTEN BY : J.-H. DU BOIS  
PERIOD COVERED : May 24th - June 24th 1980

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S W E D E N

355      GOSTA I      A product delivering 1 mg tar or less.  
SN and CO values are not specified and  
should be commensurately low.  
American blend type of taste. Moderate  
size format with cork tipping.

A good 1 mg product is not yet available and a last series of prototypes will be produced this month with double filters having a 200 K porous plug-wrap. Because of a 15 mm acetate/5 mm paper segmentation of the filter, the full dilution level will be reached and the objective might be achieved (because the perforations of the tipping fall fully on the acetate segment which is more porous than the paper segment).

361      GOSTA II      An American blend, GAMMA type product,  
delivering 2 to 4 mg tar. Moderate size.

Three products are now available (GOSTA I No 9, GOSTA II No 39 and 46).

GOSTA I No 9 is a high impact, low puff count product.

GOSTA II No 46 is a low impact, high puff count product.

GOSTA II No 39 is an intermediate product.

These products are ready for testing and Marketing will now have to decide which of the products they want to test.

359      GULLIVER      Product test between MLF and MLK.

A product test between MLF and MLK (with a 3 % of tobacco weight increase) has been urgently prepared and is now in the field.



UNITED KINGDOM

208      TENNIS      UK tar less than 16 mg/cig.  
Format : 7.975/20/85

The present situation is that a MARLBORO cigarette will be developed in order to match progressively the Pan European MARLBORO.  
A problem however exists as far as flavours are concerned, for corporate policy reasons (disclosure of the recipes to the Hunter Committee).  
Development therefore continues with a small modification to the blend recipe and trials will be made with flavoured and unflavoured filters.

FRANCE

362      WATSON      PHILIP MORRIS SUPER LIGHTS product  
with a 6 mg. tar content.

The product test against CAMEL MILD has been repeated and has been dispatched as scheduled.  
It is presently in the field.

ITALY

248      MERCEDES KS

It was not possible to produce MEK cigarette prototypes. Prototypes were therefore made by attaching filters containing Meerschaum to MEK tobacco rods. These prototypes have been submitted to Mr. A.G. Buzzi.

*J. Du Bois*  
J.-H. Du Bois

01/07/1980/JHD/cap

- 40 -

0000143469

PROJECT TITLE : PRODUCT DEVELOPMENT LABORATORY  
PERIOD COVERED : May 22nd - June 19th 1980  
WRITTEN BY : S. BEGUIN

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1) CIGARETTE PRODUCED IN THE MANUFACTURING DEPARTMENT

- a) Total quantity : 304,000  
b) Number of prototypes : 38

2) TOBACCO BLEND TRIALS IN THE PRIMARY DEPARTMENT

- a) 19 x 1,000 kg (unflavoured)

3) FILTER RODS PRODUCED IN THE FILTER MAKING DEPARTMENT


- a) Total quantity : 100,000  
b) Number of prototypes : 2

4) PACKS (20 cig.) PRODUCED IN THE PACKING DEPARTMENT

- a) Total quantity : 3,600  
b) Number of projects : 8

5) PRODUCT TESTS PREPARED : 1

S. Béguin



SEB / cap

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0000143470

PROJECT TITLE : Flavour Development  
WRITTEN BY : J.P. Fatton  
PERIOD COVERED : April 25th - June 25th, 1980

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#### Visit to suppliers

Ms. B. Krasna, Mr. A. Widmer and the undersigned visited Haarmann & Reimer and Dragoco (ref. No. 1) in Holzminden, Germany. Samples of coumarine substitute and tobacco flavours for use in future flavour development were obtained.

#### Visit of suppliers

Mr. R.A. Trevitt of I.F.F. visited Neuchâtel on June 13th, 1980 (Ref. No. 2). Under discussion was a flavour to increase the impact of a low delivery cigarette.

Ms. C. Trottier of Bertrand Frères visited Neuchâtel on June 23rd, 1980 (Ref. No. 3). She brought several samples, among which these for project Harvard.

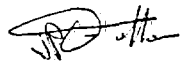
#### Flavour development

The development of a flavour for a European blend product is under way. With this we hope to stay one step ahead of the flavour development for project Harvard. The flavour application will only start when the final test prototype is chosen.

#### Miscellaneous

The inventory and classification of all samples was finished this month.

J.P. Fatton



#### References:

1. Ms. B. Krasna's report on our visit to Holzminden of June 10th, 1980.
2. Mr. J.P. Fatton's report on Mr. Trevitt's visit of June 23rd, 1980.
3. Mr. J.P. Fatton's report on Mrs. Trottier's visit of June 27th, 1980.

0000143471

PROJECT TITLE : Tobacco Analysis  
WRITTEN BY : L. Joseph  
PERIOD COVERED : June 2nd - 30th, 1980

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#### TOBACCO LOT ANALYSES

##### 1. Special trials

###### Denitrated LTR (1), (2)

The results of the trial of denitrated LTR with adjunction of potassium are available (lot 7202).

In regard to the denitrated trial with no adjunction of K (lot 7195) we notice: (See enclosed table)

- lower CO delivery in mg/cig
- lower DPM delivery in mg/cig
- higher free combustibility (74,1% for lot 7202 compared to 52,3% for lot 7195)
- higher K level (1% more)
- lower cylinder volume

The samples have been given to the Research Laboratory to analyse the citrate content.

###### Marlboro and Chesterfield blends for Algeria (3)

The results of the smoke analyses of TLA cigarettes are available.

###### MD tobaccos, storage influence (4)

We have not yet begun the analyses.

###### Blending problems with different grades of the same lot (2)

We observed lower values only in TA content, SN and DPM deliveries of the sample coming from the fourth part of the lot.

Fermented and non-fermented Swiss tobaccos

The analyses of two samples are under way.

2. Routine tobacco lot analyses

Introduction of inputs on EDP

Eighteen lots were introduced in the analytical data list.

Lots under evaluation

Fifty lots.

Lots available but not yet analysed

Thirty four lots.

3. Assistance to other projects

Project Spotless (5)

The smoke analyses of denitrated trials have been given to Mr. F. Moser.

Project RCB

The smoke analyses results of lots No. 0118 - 0120 - 0121 - 0122 (change of solution receipe) are available. Lot 0118 gave a lower CO delivery than the normal production.

We have received one more sample with another solution receipe: lot 0126 (6). The analyses are under way.

0000143473

References:

1. Letter from LTR to Mr. H. Boeckle, dated April 8th, 1980.
2. Tobacco analysis monthly report of May 1980.
3. Invoicenote of delivery from Richmond, dated April 18th, 1980.
4. Mr. Karle's report: "Chemical, physical and organoleptic examination of MD tobaccos ..., of May 12, 1978", dated September 19th, 1978.
5. Spotless monthly report of January 1980.
6. Letter from Mr. P. Karbacher to Mr. J.P. Caccivio, dated May 29th, 1980.

June 30, 1980  
LIJ/noh

0000143474

Table

Trial on denitrated LTR

		lot 7198 standard	lot 7195 denitrated	lot 7202 denitrated + K adj.
<u>Filler analysis</u>				
TA	(%)	0.56	0.56	0.59
RS	(%)	5.1	5.4	6.1
NO <sub>3</sub> -N	(%)	0.51	0.15	0.15
NH <sub>3</sub> -N	(%)	0.20	0.18	0.21
Tot-N	(%)	2.31	1.73	1.73
pH		7.3	7.4	6.8
Chloride	(%)	1.41	1.40	1.34
Ashes	(%)	22.0	20.2	23.2
K	(%)	4.61	3.79	4.80
Ca	(%)	4.24	4.34	5.12
Mg	(%)	0.46	0.42	0.44
CV at e.m.	(ml/10g)	33.0	34.7	29.9
Equilibrium moisture	(%)	11.9	11.9	11.5
HWS	(%)	42.3	38.7	41.9
Phosphate	(%)	0.43	0.52	0.45
Sulfate	(%)	0.73	1.00	1.24

Cigarette analysis

Tobacco weight	(mg)	1040	1022	1124
Diameter	(mm)	8.00	8.02	8.01
RTD	(mm H <sub>2</sub> O)	112	117	134
Compressibility	(mm)	3.33	3.01	3.33
		at 11.8% mc	at 11.3% mc	at 12.3% mc
OV	(%)	11.9	11.6	11.7

Smoke analysis

CO	(mg/cig)	21.2	28.0	23.6
NO	(mg/cig)	0.58	0.21	0.19
DPM	(mg/cig)	9.0	10.4	8.6
SN	(mg/cig)	0.34	0.42	0.38
Puff number	(nbr/cig)	8.2	8.4	8.9
HCN	(µg/cig)	171	158	110
Aldehydes	(mg/cig)	1.56	1.59	1.41

PROJECT TITLE : Q.C. Onnens  
PERIOD COVERED : May 22nd - June 23rd, 1980  
WRITTEN BY : A. Robbiani

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LAB

The installation of the new laboratory was finished.  
All Q.C. work on ES, RCB and ET can be carried out with the existing equipment, particularly the determination of O.V., C.V. and S.V.

PERSONNEL

The second lab. technician started work on June 16th at 50% for the time being.  
A third person will be hired.


SIEVE FRACTIONS AND C.V. COMPARISON TEST

Three MLF cut rag tobacco samples were prepared. On all 3 samples sieve fractions and C.V. will be determined for comparison :

- Sample 1 in FTR
- Sample 2 in Richmond
- Sample 3 in FTR, after having been sent to Richmond and returned to Neuchâtel.

The test results are not yet available.

PROCESS DEVELOPMENT



A. Robbiani

July 3rd, 1980  
ARO/sde



PROJECT TITLE : Cigarette and Smoke Analysis  
Period Covered : June 1 - 27, 1980  
Report Written by : F. Senehi  
Report Approved by : F. Lopes

#### SMOKING PANEL

The following Marlboro versions were mail-out tested:

F 36 = standard (with Eastman tow)

H 64 = tow Rhodia 3,4/46 000 I

Preference was significantly given to the standard.

#### PRODUCT REPORTS

Product Reports were written on the following new or modified brands:

<u>Brand</u>	<u>Manufacturer</u>	<u>Country of Sale</u>
Belga King size 80/F (new pack, new format)	Tabacofina	Belgium
Camel Mild 84/F (new brand)	Reynolds	West Germany
Hobby Extra 84/F (new brand)	Austria T.	West Germany
Milde Sorte Extra Mild 84/F (new brand)	Austria T.	Norway
Petterø's K.S. 84/F (new brand)	Tiedemanns	Norway
Commerce Lights 67/F (new brand)	Swedish Tobacco	Sweden
Salem Lights Menthol 79/F (new brand)	Reynolds	Sweden
Camel Mild 79/F (new brand)	Reynolds	Switzerland
Marocaine Extra 79/F (new brand)	BAT	Switzerland
Gallaher lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom
John Player vanguard K.S. 84/F (new brand)	Imperial T.	United Kingdom
Peter Stuyvesant Extra Mild Luxury length 94/F (new brand)	Carreras-Rothmans	United Kingdom
Peter Stuyvesant Luxury length 94/F (new brand)	Carreras-Rothmans	United Kingdom
Winston Lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom

QC FINISHED PRODUCTS

*F. Senehi*  
F. Senehi

27-06-80 SEF/edk

PROJECT TITLE : Additives and Analytical Services

Period Covered : May 28 - June 23, 1980

Report Written by : A. Widmer

Report Approved by : F. Lopes

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#### TRIALS WITH NEW SUPPLIERS OF TOBACCO ADDITIVES

- Inverted sugar (LAUMANN & CO., Bischofszell / yellow sheet 5670, 2 x 10 kg) - Ref. 1

Two new samples ("IP" and "IF"), for which the inversion of saccharose has been carried out by enzymes, were submitted by the supplier.

Acidity, pH and density were within specifications. In both samples the water content was slightly too high and the sugar content slightly too low. Later on, we were informed by the supplier that, in any case, he could not supply the product in bigger quantities, due to a lack of capacity.

Concluded on June 9, 1980

- Sodium benzoate (ex PFIZER, Nigeria) - Ref. 2

The sample corresponds to our specifications.

#### QUALITY CONTROL OF TOBACCO ADDITIVES

- AAC - BASE A 1 (PMG, Munich) - Ref. 3

No significant difference from the standard could be observed.

- Ethanol (PMG, Munich) - Ref. 3

The samples correspond to the standard

- MFSB 1 (PMG, Munich) - Ref. 3

No significant difference from the standard could be observed.

- Cochise (SUCHARD, Neuchâtel / blue sheet 7625)

A fat content of 17.7 % was determined. This high level is due to a high quantity of crushed cocoa-nuts in the product.

The shipment was returned to the supplier.

- Polyethylene glycol 600 (RHODIA SUISSE SA, Genève) - Ref. 4

The supplier does not see the possibility to guarantee that the product would regularly be within our specifications. Therefore, RHODIA has to be eliminated from the list of accepted suppliers.

0000143478

TRIALS WITH NEW SUPPLIERS OF FILTER ADDITIVES

- Activated charcoal (ZUELLIG OVERSEAS EXPORT, Zürich / yellow sheet 5700, 2 x 500 g)

Two samples were submitted by the supplier. The sample "8004007" does not correspond to our specifications as regards  $\text{CCl}_4$ -index. The sample "8004008" corresponds to our specifications. 20 kg of the latter were ordered for a first trial.

TRIALS WITH NEW SUPPLIERS OF GLUES

- Glue for packing machine (LAESSER AG, Erlinsbach, "Lesso 5021/3" / yellow sheet 5688, 500 kg) - Ref. 5

Machineability: The good results of the first trial were confirmed. 2500 kg of this glue were ordered for a long term test.

- Glue for packing machine (CHEMIE MOUDON SA, Sarnen "Moudocol V-764" / yellow sheet 5664, 200 kg) - Ref. 6

The trial had to be stopped because solid parts in the glue were causing serious problems on the machine. Further trials are not planned.

PRODUCT QUALITY

- Determination of humectants and plasticizer in cigarettes

The composition of humectants and filter plasticizer was determined in 36 brands from Eastern countries (Bulgaria, Czechoslovakia, Hungary and Yugoslavia). Almost all brands contained glycerine, propylene glycol and diethylene glycol, however, often in little quantities only. Only triacetine was used as plasticizer.

ASSISTANCE TO OTHER COUNTRIES

- Determination of viscosity (PMG, Munich / PMH, Eindhoven) - Ref. 7

The viscosity in function of the temperature ( $20 - 90^\circ\text{C}$ ) was determined on the rotational BROOKFIELD-viscosimeter for MF-PC, BURLEY-CASING, Propylene glycol, Glycerine, inverted sugar and liquid sugar.

PROJECT TITLE : Additives and Analytical Services

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SERVICES FOR OTHER GROUPS

- Analyses for Mr. P. Ghiste  
Chloride in extracts (19 samples)
- Analyses for Mr. F. Moser  
Triacetine in filters and filter rods (13 samples)
- Analyses for foil mentholating  
Menthol in cigarettes (10 samples)

QC ANALYTICAL SERVICES

A. Widmer



REFERENCES

1. Monthly report A. Widmer, February 1980  
Letter from LAUMANN & CO. to Mr. W. Trüssel, dd. June 9, 1980
2. Letter from A. Widmer to Mr. M. Broillet, dd. May 30, 1980
3. Letter from A. Widmer to Mr. B.W. Lutzig, dd. June 19, 1980
4. Monthly report A. Widmer, April 1980  
Minutes of the yellow sheet meeting, dd. June 4, 1980
5. Monthly report A. Widmer, May 1980
6. Monthly report A. Widmer, January 1980
7. Letter from A. Widmer to Mr. B.W. Lutzig and Mr. B. van Duuren,  
dd. June 20, 1980

27-06-80 ALW/edk

0000143480

PROJECT TITLE : Material testing  
Period Covered : June 1 - 30, 1980  
Report Written by : P. Balliger  
Report Approved by : F. Lopes

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#### POROUS PLUG WRAP

HF 24K-28 Variante 4/2 Glatz  
(ref. December report)

This porous filter paper, which can be compared to FU POW 24L standard quality used on semi-diluted Marlboro, was accepted tastewise during a preliminary trial.

Therefore, in order to have confirmation of the taste evaluation and also to have a better knowledge of the machineability of this material, an industrial trial was organized in FTR.

No special problems were noticed when using this material on a large scale and the finished products gave the expected taste and smoking figures. Based on these considerations, this porous plug wrap HF 24K-28 Varit. 4/2 can be qualified as an equivalent to our standard material.

#### CIGARETTE PAPER

Verge NSP 200 Variant 3 to 6 Glatz  
Verge E 30023 Wattens  
(ref. February report)

In order to find a different supplier for MLK-DB cigarette paper, Wattens and Glatz were requested to produce the above mentioned qualities which correspond to Schoeller & Hoesch's Pela 200 M.

Except for the quality supplied by Wattens, all the other cigarette paper qualities were refused tastewise by smoking panel A.

The Wattens version E 30023 being closer to the Marlboro character than the others, the smoking panel A representatives suggested to run another trial for confirmation.

#### FILTRATION MATERIAL

3,3/44 000 Y Celanese USA  
3,4/46 000 I Celanese USA  
3,4/46 000 I Amcel Belgium

(ref. March report)

Diluted Marlboro were manufactured with the above mentioned filtration materials and submitted to smoking panel A for taste evaluation.

PROJECT TITLE:

: Material testing

Both 3,4/46 000 I qualities, made in USA and Belgium, were refused taste-wise as they did not give the Marlboro character.

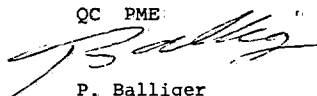
Nevertheless, the quality 3,3/44 000 Y, which is being used at present on diluted MLF products in Richmond, gave a pleasant taste. However, due to the poor quality of the control, this trial has to be repeated before taking a final decision.

3,4/46 000 I balle No. 37790 Rhodia

(ref. March report)

Further to a previous trial made with this material on diluted Marlboro, a mail-out test was organized (ref. to SEF report). According to the results obtained, the tow 3,4/46 000 I Rhodia was refused.

QC PME



P. Balliger

30.06.80 PBA/edk

0000143482

PROJECT TITLE : SPECIFICATIONS AND PROCESS ASSURANCE

Period Covered : 23.5. - 25.6.1980

Report Written By : C. Flury and T. Bel

Report Approved By: J.B. Boder

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0. Specifications - General

- The edition number 3 of the PME guidelines for manufacturing and material specifications, which had been discussed during the QC PME meeting of April, 1980, have been distributed with an accompanying letter of J.B. Boder.

1. Specifications Fabriques de Tabac Réunies SA

- Products with new numbers printed on packs:
  - Brunette Extra BRE/BRS passed from 7/0,6 to 6/0,5 mg.
  - Brunette Carrée BRC passed from 23 to 21 mg
- The following new specs have been established:
  - Ambassador packing spec MAA 059, for sale in Tunisia (Air Tunis)
  - Filter making specs for a combined filter (black/white, non-porous, 120 mm) to be produced for sale to PM Nigeria.
- The RTDs resistances to draw have been adapted for the three porous combined filters:

- MAA 108 mm	34.7108	from 450 to 420 mm WG
- MAK 120 mm	34.7220	" 480 " 420 "
- MPH 100 mm	34.7001	" 290 " 270 "
- The cigarette paper quality 006, WP 60, has been replaced by quality 036, W 100, on the cigarette MAG Ambassador Extra Mild KS. The objective is to reduce the numbers.
- Packing version Marlboro MLF 029, sale Sweden, has been re-issued, as the launch of the Marlboro King Size cigarette in Hinge Lid pack has been postponed.
- The former metallic packet tear tape, used on PMI Ph. Morris International, has been replaced by a thermogluing tape.
- Several packing specs for products to be sold in Switzerland have been modified: As from 1.10.1980,

the selling price will be 10 cents higher, and at the same time, a "Warning..." will be printed on all packs.

2. Specifications INTERTABA S.p.A. Zola Predosa

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3. Specifications PM Holland

- The processing specs for blend NPK North Pole King Size have been modified. A menthol content of plus 10 % will be applied (see product modification 28.4.80).

4. Specifications PM Germany

- The manufacturing specifications for MLB Marlboro King Size, in Hinge Lid pack, produced under contract at Austria Tabakwerke Berlin on behalf of PMG Berlin, have been issued.
- All specs for PMG Berlin have been reviewed.
- The filter length of BSL Bond Street Mild, MLN Marlboro Menthol KS, and PMI Ph. Morris International, has been increased from 20 to 21 mm.

5. Specifications WELTAB SA

- The manufacturing specs for the products manufactured under contract with Jubilé, on behalf of WELTAB SA, are still outstanding.
- Provisional specs have been issued for project Merit Boost Programme UK (Merit Filter KS, Great Britain) Cigarette MER 09, brand code MER 152.
- Upon PME Development request, the RTD of the 120 mm filter, used on Marlboro KS Great Britain, has been increased from 375 to 410 mm WG.
- On cigarette MAC Ambassador Extra Mild KS, a tipping paper with 6 instead of 4 perforation lines is used, to reduce the numbers.

6. Specifications PM London

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#### 7. Specifications Licensees

- Italy:  
The processing and cigarette making specs have been modified in view of the final step of Esther addition to the blends Mercedes (7,5 %), Ambassador (6,875 %), and Marlboro (6,666 %).
- DDR:  
Project specs have been prepared for the manufacture of a MPH Multifilter 100s cigarette in Nordhausen.
- Great Britain:  
The specs file of Manchester Tobacco Co. has been completed by LAG Lark King Size, in Hinge Lid pack.
- Nigeria:  
Project specs for project York, an Multifilter King Size cigarette, have been prepared.

#### 8. Material Specifications

- After an interruption of several months, the 12th QC and MPP PME coordination meeting took place in Lausanne, on 12.6.1980.
- Following the requests of all QC and Purchasing managers of the production centers, a letter has been addressed to A. Peier, MPP PME, so that the attachment of correct and coloured identification slips to the cores of the cigarette paper and filter paper bobbins will be coordinated and organized.

#### 9. PME Standard Recipes

- A letter with different recommendations concerning the list of ingredients and the PME material numbers for ingredients has been addressed to all QC managers, on 17.6.1980.

#### 10. Specifications on EDP

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## 11. Process Assurance

### 11.1 AccuRay

A letter has been addressed to all QC managers, explaining the present situation and the reasons for not having adopted the AR limits fixed during the QC PME meeting, with immediate effect. New proposals have been made by QC FTR, in agreement with FTR's production management. These limits will be presented to the QC managers of the other production centers.

### 11.2 Non-tobacco Material Weights in Specifications

Some of the production centers have not yet carried out the test required to determine a PME standard specification regarding the weight of the glue on the cigarette seam.

The next process assurance method to be prepared will refer to the weight of the glue on the tipping paper. However, a feasibility test will first have to be carried out by FTR.

### 11.3 Diameters of Filters and Cigarettes

A discussion with PME Product Coordination will take place in Lausanne on 30.6.1980 to define the details of the planned standardisation of cigarette diameters to 7,95 mm, on European level. The programme will also include the cigarettes with logotype-printed tipping papers.

### 11.4 Dilution

The inventory on dilution results for all European fully and semi-diluted MLFs Marlboro Filter cigarettes is not yet complete (other priorities). The report should be concluded by the end of July, 1980.

### 11.5 Foil Mentholating

The three methods referring to the foil mentholating process have been distributed to all QC managers:

- |  |        |
|--|--------|
| a) Mentholating of inner aluminium foil  | No 715 |
| b) Storage of mentholated aluminium foil | No 716 |
| c) Cigarettes with foil mentholation     | No 717 |

### 11.6 Burley Treatment

As soon as the information from PM Holland, regarding

the Bergen op Zoom Burley dryer, will be available, a final report will be prepared and distributed.

During our visit to PMG Berlin, some information could also be collected regarding the Proctor & Schwartz equipment to be erected in their new processing department.

11.7 Kitchen and Pre- and After-cutting Solutions

The final report will be edited after the visit to PMG Munich which is planned for beginning July. All information from the other production centers is available.

11.8 Production of Starch Glue

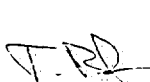
A final report will be written after the visit to PMG Munich, beginning July.

11.9 Tobacco Weights

This is a new study which has the objective of comparing the effective tobacco weights in the different production centers for the cigarettes MLF - MLK - MLB - MER- MPH. The extreme deviations per machine and the light weight rejects will be included in the study, which will cover the five first months of 1980. - All production centers have been contacted and their results are awaited, so that the presentation can be terminated until mid-July, 1980.

11.10 New Processing Departments in PMG Berlin and PMH Bergen op Zoom

A detailed programme regarding the quality control check points will be prepared in cooperation with PMG and MPH. Our office has been charged to coordinate between the two project teams which will be summoned in the two production centers. A complete test programme will have to be presented by end September, 1980.

  
T. Bel

  
C. Flury

PROJECT TITLE : Physical Testing Methods

Period Covered : June 1 - June 30, 1980  
Report Written : T. Piko  
Report Approved : F. Lopes

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#### PHYSICAL TESTS

The results of May for the collective test on physical measurements were calculated and distributed to the participants (see enclosed table).

#### CIGARETTE COMPRESSIBILITY

- Final prototype of this instrument was tested and approved.
- We received the electronical part for the 10 instruments under construction.
- The delivery for the mechanical part is delayed until end August.

#### PRESSURE DROP AND DILUTION INSTRUMENT EX-PME

A series of 10 instruments has been assembled.

#### MISCELLANEOUS

- 4 RTD - Dilution instruments were despatched to the Italian Tobacco Manufacture.
- 1 RTD - Dilution instrument was despatched to Papastratos Cigarette Mfg. Co.
- 3 measuring heads for paper porosity were despatched to Papier Fabrik Wattens.
- 1 complete instrument for paper porosity measurement was despatched to Cartiere del Maglio e di Brodano.

QC - METHODS

T. Piko

11.07.1980 THP/mat

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		1979					1980						$\bar{X}^3$
		A	S	O	N	D	J	F	M	A	M	J	
PM-BERLIN													
C.C.	$\bar{x}$	3.29	3.14	2.96	3.01	3.29	3.20	2.99	3.06	3.20	2.87		3.04
	$s$	0.07	0.07	0.29	0.25	0.11	0.32	0.31	0.16	0.11	0.18		
O.V.	$\bar{x}$	11.3	11.2	11.2	11.2	11.2	11.4	11.3	11.2	11.4	11.0		11.2
	$s$	0.43	0.17	0.10	0.39	0.10	0.18	0.13	0.38	0.21	0.32		
RTD	$\bar{x}$	92.5	90.8	99.0	90.6	91.4	95.0	90.7	101.3	91.9	88.9		94.0
	$s$	2.11	4.27	9.45	0.62	1.64	8.95	2.08	5.89	0.97	1.81		
DIL.	$\bar{x}$	18.9	17.5	18.6	18.8	18.5	19.2	18.7	18.7	18.8	18.4		18.6
	$s$	0.29	1.56	0.35	0.26	0.29	0.46	0.37	0.19	0.13	0.19		
PM-MUNICH													
C.C.	$\bar{x}$	----	2.76	2.81	3.20	3.07	3.25	3.17	3.18	3.15	3.02		3.12
	$s$	----	0.30	0.19	0.17	0.06	0.21	0.09	0.13	0.12	0.12		
O.V.	$\bar{x}$	----	11.1	11.4	10.8	11.0	11.2	11.0	10.87	10.7	10.8		10.9
	$s$	----	0.26	0.29	0.29	0.30	0.31	0.41	0.13	0.41	0.40		
RTD	$\bar{x}$	----	92.6	92.4	91.6	91.3	92.7	91.6	92.8	92.5	91.6		92.3
	$s$	----	0.28	1.01	1.51	2.86	0.93	0.76	0.30	0.60	1.41		
DIL.	$\bar{x}$	----	19.6	20.1	20.0	20.7	20.2	19.8	20.0	20.1	19.9		20.0
	$s$	----	0.33	1.24	0.10	1.48	0.37	0.40	0.29	0.06	0.29		
WELTAB													
C.C.	$\bar{x}$	----	3.25	3.31	3.11	----	3.15	3.07	3.21	3.23	3.33		3.26
	$s$	----	0.09	0.05	0.08	----	0.04	0.35	0.09	0.03	0.19		
O.V.	$\bar{x}$	----	11.0	11.2	11.1	----	11.1	11.5	11.8	11.3	11.4		11.5
	$s$	----	0.29	0.05	0.17	----	0.15	0.68	0.44	0.38	0.57		
RTD	$\bar{x}$	----	87.8	88.5	86.7	----	86.0	85.4	85.6	87.6	87.9		87.0
	$s$	----	0.93	2.70	0.72	----	3.17	2.19	11.25	3.56	3.86		
DIL.	$\bar{x}$	----	20.3	19.6	19.0	----	19.7	19.1	18.2	18.4	18.6		18.4
	$s$	----	1.15	0.47	0.46	----	0.30	0.51	0.56	0.52	0.70		
PM-HOLLAND													
C.C.	$\bar{x}$	----	3.42	3.14	3.42	3.44	3.14	3.04	3.14	3.01	3.19		3.11
	$s$	----	0.23	0.24	0.23	0.14	0.17	0.12	0.14	0.31	0.10		
O.V.	$\bar{x}$	----	11.2	10.7	11.2	11.2	11.1	10.6	11.4	10.8	11.1		11.1
	$s$	----	0.36	0.54	0.45	0.46	0.62	0.28	0.16	0.82	0.46		
RTD	$\bar{x}$	----	91.3	91.0	90.3	90.0	88.7	89.0	88.5	88.0	89.3		88.6
	$s$	----	1.50	1.63	2.63	3.16	3.50	0.82	1.73	1.15	2.63		
DIL.	$\bar{x}$	----	18.0	18.5	18.4	18.4	17.7	18.0	18.5	19.0	19.7		19.1
	$s$	----	0.58	0.83	0.47	0.85	0.94	0.34	0.47	0.34	1.25		
QC-F.T.P.													
C.C.	$\bar{x}$	3.22	3.23	3.26	3.26	3.37	3.21	3.33	3.47	3.26	3.21		3.31
	$s$	0.16	0.27	0.05	0.16	0.10	0.16	0.18	0.14	0.16	0.08		
O.V.	$\bar{x}$	11.2	10.9	11.5	11.3	11.3	11.4	11.7	12.2	11.5	11.8		11.9
	$s$	0.35	0.78	0.30	0.41	0.16	0.12	0.32	0.20	0.19	0.45		
RTD	$\bar{x}$	87.1	89.8	86.8	88.9	84.3	84.8	84.4	84.9	86.6	86.8		85.1
	$s$	3.48	1.01	3.19	2.81	4.17	2.54	2.99	5.24	4.32	4.13		
DIL.	$\bar{x}$	17.2	18.7	17.5	18.7	18.7	18.9	18.3	16.8	18.9	18.6		18.1
	$s$	0.41	0.91	1.26	0.75	0.96	1.06	2.46	1.79	0.58	0.92		
QC-PHE													
C.C.	$\bar{x}$	3.37	3.41	3.58	3.48	3.58	3.56	3.52	3.45	3.11	3.36		3.31
	$s$	0.23	0.11	0.13	0.14	0.14	0.12	0.19	0.08	0.08	0.13		
O.V.	$\bar{x}$	11.5	11.3	11.6	11.5	11.7	11.7	11.9	11.8	11.3	12.0		11.7
	$s$	0.62	0.31	0.42	0.29	0.30	0.19	0.36	0.31	0.20	0.49		
RTD	$\bar{x}$	84.0	82.0	83.8	84.3	90.5	88.8	88.8	89.5	91.0	90.0		90.2
	$s$	11.83	1.63	11.26	2.22	1.00	1.26	0.96	1.73	1.41	3.74		
DIL.	$\bar{x}$	19.0	18.2	19.5	18.8	20.3	19.3	19.0	19.5	19.0	18.0		18.3
	$s$	0.82	0.50	1.00	0.96	0.50	0.50	0.00	0.58	1.41	1.41		

$\bar{X}^3$ : Average of the last three months

c.c.: cigarette compressibility

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0000143489

PROJECT TITLE : PATENTS  
PERIOD COVERED : June 1980  
WRITTEN BY : J.C. Mandiratta

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UNITED STATES PATENT APPLICATION: BOX FOR CIGARETTES

We have been informed by the United States Patent Office that all eight claims have been rejected on the grounds of the American patent prior art. Dr. Hach has been instructed to prepare a reply for the United States Patent Office in support to our United States application.

NEW PATENTS ISSUED

The following applications have been published recently:

The Netherlands	7804047	Process of Improving Tobacco (Anaerobic Fermentation)
Australia	34921/78	Same as above
The Netherlands	7900761	Process of Improving Tobacco (Aerobic Fermentation)
Australia	43472/79	Same as above

REGISTRATION OF PATENT RIGHTS FROM LIGGETT & MYERS TO FTR

The transfer of patent rights from Liggett & Myers to FTR for the undermentioned patents has been executed with the German Patent Office.

West Germany	PS 15 17 297	Basic Lark Filter
West Germany	PS 22 29 269	Tobacco Flavorants in Form of Aldehydes, Alcohols, Acids, Esters and Ethers which can be Embodied in Tobacco as by Spraying etc.
West Germany	PS 21 64 824	Apparatus for Making Lark Filters and Functioning to Axially Compact the Particulate Charge in the Filter Unit Assembly
West Germany	PS 25 58 004	Filter, Apparatus & Method of Making same. So-Called "Tow-in Tow" Filter Commonly Termed the "Vello"
West Germany	GM 79 19 909	Same as above
West Germany	GM 75 40 983	Same as above
West Germany	PS 12 95 456	Apparatus and Process for Making Lark Filters

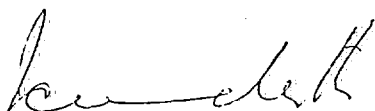
## RENEWAL FEES

The renewal fees have been paid for the undermentioned patents and patent applications:

Switzerland	516 914	Process and Apparatus for Producing a Sheet of Tobacco
Great Britain	1 257 768	Same as above
South Africa	70/6445	Same as above
West Germany	PS 2 338 735	Method and Apparatus for Producing Smokable Fibrous Material
Great Britain	1 408 330	Same as above
Luxemburg	68 080	Smokable Product with Meerschaum Particles
Switzerland	590 619	Same as above
France	2 245 303	Same as above
South Africa	74/4634	Same as above
Australia	478 464	Same as above
West Germany	PS 2 431 634	Smokable Product with Meerschaum Particles
Great Britain	1 454 227	Same as above
Luxemburg	68 081	Same as above
West Germany	PS 2 431 635	Same as above
Great Britain	1 454 228	Same as above
Russia	575 009	Same as above
Great Britain	1 497 514	Process for Production of Synthetic Tobacco
West Germany	OS 2 633 627	Same as above
Luxemburg	77 872	Process of Improving Tobacco (Anaerobic Fermentation)
Luxemburg	81 611	Process of Improving Tobacco (Candida Utilis)
Luxemburg	80 049	Box for Smoking Articles

## PATENT DOCUMENTATION

Todate, 4100 patents are on the STAIRS system for patent documentation.



J.C. Mandiratta